#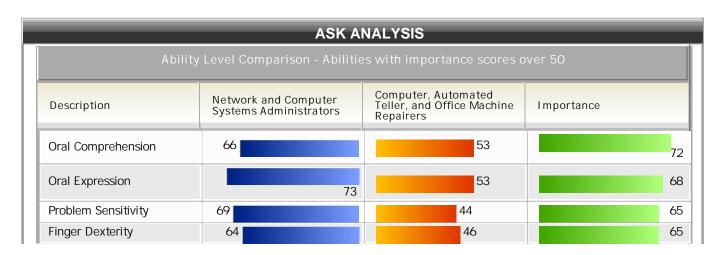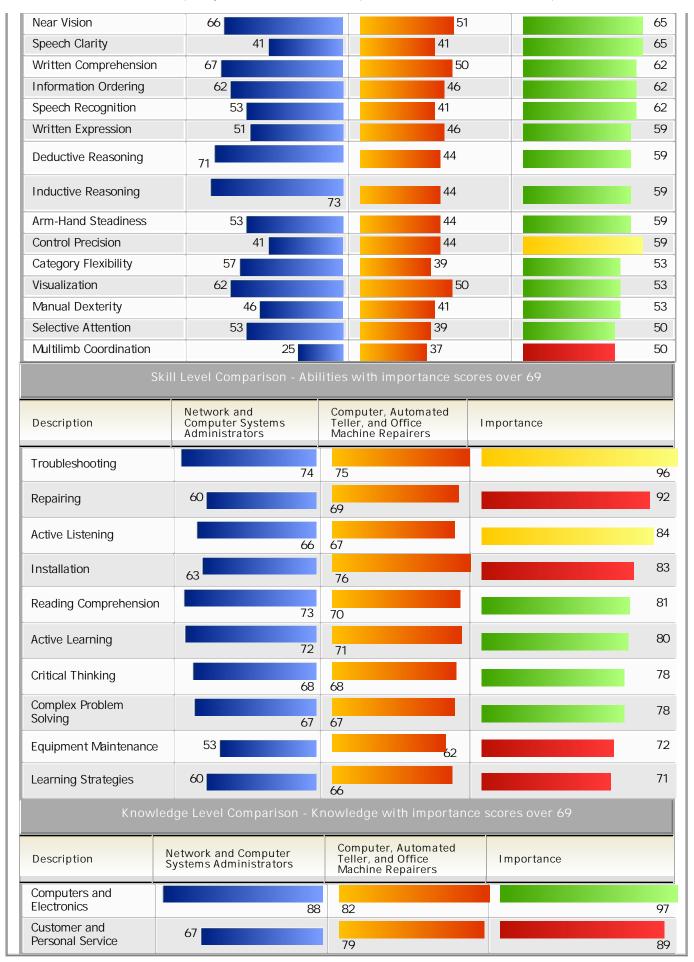 TORQ Analysis of Network and Computer Systems Administrators to Computer, Automated Teller, and Office Machine Repairers

INPUT SECTION:

Transfer	Title	O*NET	Filters			
From Title:	Network and Computer Systems Administrators	15-1071.00	Abilities:	Importance LeveL: 50	Weight: 1	
To Title:	Computer, Automated Teller, and Office Machine Repairers	49-2011.00	Skills:	Importance LeveL: 69	Weight: 1	
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1	

OUTPUT SECTION:

Grand TORQ:		89

Ability TORQ	Skills TORQ	Knowledge TORQ
Level 86	Level 88	Level 92

Gaps To Narrow if Possible

Ability	Level	Gap	Impt
Multilimb Coordination	37	12	50
Control Precision	44	3	59

Upgrade These Skills

Skill	Level	Gap	Impt
Installation	76	13	83
Repairing	69	9	92
Equipment Maintenance	62	9	72
Learning Strategies	66	6	71
Troubleshooting	75	1	96
Active Listening	67	1	84

Knowledge to Add

Knowledge	Level	Gap	Impt
Customer and Personal Service	79	12	89

LEVEL and IMPT (IMPORTANCE) refer to the Target Computer, Automated Teller, and Office Machine Repairers. GAP refers to level difference between Network and Computer Systems Administrators and Computer, Automated Teller, and Office Machine Repairers.

ASK ANALYSIS

Ability Level Comparison - Abilities with importance scores over 50

Description	Network and Computer Systems Administrators	Computer, Automated Teller, and Office Machine Repairers	Importance
Oral Comprehension	66	53	72
Oral Expression	73	53	68
Problem Sensitivity	69	44	65
Finger Dexterity	64	46	65

Description	Network and Computer Systems Administrators	Computer, Automated Teller, and Office Machine Repairers	Importance
Near Vision	66	51	65
Speech Clarity	41	41	65
Written Comprehension	67	50	62
Information Ordering	62	46	62
Speech Recognition	53	41	62
Written Expression	51	46	59
Deductive Reasoning	71	44	59
Inductive Reasoning	73	44	59
Arm-Hand Steadiness	53	44	59
Control Precision	41	44	59
Category Flexibility	57	39	53
Visualization	62	50	53
Manual Dexterity	46	41	53
Selective Attention	53	39	50
Multilimb Coordination	25	37	50

Skill Level Comparison - Abilities with importance scores over 69

Description	Network and Computer Systems Administrators	Computer, Automated Teller, and Office Machine Repairers	Importance
Troubleshooting	74	75	96
Repairing	60	69	92
Active Listening	66	67	84
Installation	63	76	83
Reading Comprehension	73	70	81
Active Learning	72	71	80
Critical Thinking	68	68	78
Complex Problem Solving	67	67	78
Equipment Maintenance	53	62	72
Learning Strategies	60	66	71

Knowledge Level Comparison - Knowledge with importance scores over 69

Description	Network and Computer Systems Administrators	Computer, Automated Teller, and Office Machine Repairers	Importance
Computers and Electronics	88	82	97
Customer and Personal Service	67	79	89

Experience & Education Comparison

Related Work Experience Comparison

Description	Network and Computer Systems Administrators	Computer, Automated Teller, and Office Machine Repairers
10+ years	0%	11%
8-10 years	3%	1%
6-8 years	3%	5%
4-6 years	23%	3%
2-4 years	47%	25%
1-2 years	15%	9%
6-12 months	1%	25%
3-6 months	3%	0%
1-3 months	0%	1%
0-1 month	1%	3%
None	0%	13%

Required Education Level Comparison

Description	Network and Computer Systems Administrators	Computer, Automated Teller, and Office Machine Repairers
Doctoral	0%	0%
Professional Degree	0%	0%
Post-Masters Cert	0%	0%
Master's Degree	4%	0%
Post-Bachelor Cert	9%	0%
Bachelors	42%	8%
AA or Equiv	14%	28%
Some College	9%	35%
Post-Secondary Certificate	18%	14%
High Scool Diploma or GED	1%	12%
No HSD or GED	0%	0%

Network and Computer Systems Administrators	Computer, Automated Teller, and Office Machine Repairers

Most Common Educational/Training Requirement:

Bachelor's degree	Postsecondary vocational award

Job Zone Comparison

4 - Job Zone Four: Considerable Preparation Needed	3 - Job Zone Three: Medium Preparation Needed
A minimum of two to four years of work-related skill, knowledge, or experience is needed for these occupations. For example, an accountant must complete four years of college and work for several years in accounting to be considered qualified.	Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.
Most of these occupations require a four - year bachelor's degree, but some do not.	Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.
Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.	Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.

Tasks

Network and Computer Systems Administrators

Core Tasks

Generalized Work Activities:

- Interacting With Computers - Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information.
- Updating and Using Relevant Knowledge - Keeping up-to-date technically and applying new knowledge to your job.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Making Decisions and Solving Problems -

Computer, Automated Teller, and Office Machine Repairers

Core Tasks

Generalized Work Activities:

- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Interacting With Computers - Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information.
- Repairing and Maintaining Electronic Equipment - Servicing, repairing, calibrating, regulating, fine-tuning, or testing machines, devices, and equipment

Analyzing information and evaluating results to choose the best solution and solve problems.

- Thinking Creatively - Developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions.

Specific Tasks

Occupation Specific Tasks:

- Confer with users to discuss issues such as computer data access needs, security violations, and programming changes.
- Coordinate implementation of computer system plan with establishment personnel and outside vendors.
- Develop plans to safeguard computer files against accidental or unauthorized modification, destruction, or disclosure and to meet emergency data processing needs.
- Document computer security and emergency measures policies, procedures, and tests.
- Encrypt data transmissions and erect firewalls to conceal confidential information as it is being transmitted and to keep out tainted digital transfers.
- Maintain permanent fleet cryptologic and carry-on direct support systems required in special land, sea surface and subsurface operations.
- Modify computer security files to incorporate new software, correct errors, or change individual access status.
- Monitor current reports of computer viruses to determine when to update virus protection systems.
- Monitor use of data files and regulate access to safeguard information in computer files.
- Perform risk assessments and execute tests of data processing system to ensure functioning of data processing activities and security measures.
- Review violations of computer security procedures and discuss procedures with violators to ensure violations are not repeated.
- Train users and promote security awareness to ensure system security and to improve server and network efficiency.

Detailed Tasks

Detailed Work Activities:

- adjust computer operation system
- communicate technical information
- conduct computer diagnostics to determine nature of problems
- confer with personnel to discuss security violations or programming
- develop policies, procedures, methods, or

that operate primarily on the basis of electrical or electronic (not mechanical) principles.

- Making Decisions and Solving Problems - Analyzing information and evaluating results to choose the best solution and solve problems.
- Updating and Using Relevant Knowledge - Keeping up-to-date technically and applying new knowledge to your job.

Specific Tasks

Occupation Specific Tasks:

- Advise customers concerning equipment operation, maintenance and programming.
- Align, adjust, and calibrate equipment according to specifications.
- Analyze equipment performance records in order to assess equipment functioning.
- Assemble machines according to specifications, using hand tools, power tools, and measuring devices.
- Calibrate testing instruments.
- Clean, oil, and adjust mechanical parts to maintain machines' operating efficiency and to prevent breakdowns.
- Complete repair bills, shop records, time cards, and expense reports.
- Converse with customers in order to determine details of equipment problems.
- Disassemble machine to examine parts such as wires, gears, and bearings for wear and defects, using hand tools, power tools, and measuring devices.
- Enter information into computers to copy programs from one electronic component to another, or to draw, modify, or store schematics.
- Fill machines with toners, inks, or other duplicating fluids.
- Install and configure new equipment, including operating software and peripheral equipment.
- Lay cable and hook up electrical connections between machines, power sources, and phone lines.
- Maintain parts inventories, and order any additional parts needed for repairs.
- Maintain records of equipment maintenance work and repairs.
- Operate machines in order to test functioning of parts and mechanisms.
- Read specifications such as blueprints, charts, and schematics in order to determine machine settings and adjustments.
- Reassemble machines after making repairs or replacing parts.
- Reinstall software programs or adjust settings on existing software in order to fix machine malfunctions.
- Repair, adjust, or replace electrical and

standards

- evaluate computer system user requests or requirements
- follow confidentiality procedures
- follow data security procedures
- identify appropriate software for project
- install electronic equipment, components, or systems
- install security measures
- maintain or repair computers or related equipment
- monitor use of computer data files to safeguard information
- obtain information from individuals
- perform minor repairs to hardware, software, or peripheral equipment
- plan computer security measures
- prepare instruction manuals
- provide technical support to computer users
- revise or correct errors in computer programs, software, or systems
- test computer programs or systems
- train workers in use of computer and related equipment
- understand computer equipment operating manuals
- understand technical information for electronic repair work
- use computers to enter, access or retrieve data
- use interpersonal communication techniques
- use knowledge of investigation techniques
- use precision tools in electronics repair
- use spreadsheet software
- use word processing or desktop publishing software

Technology - Examples

Access software

- Access management software
- Mac HelpMate
- Remote desktop control software

Administration software

- Cisco Systems CiscoWorks
- Element management software
- Hewlett-Packard HP Network Node Manager
- Network address management software
- Network documentation software

mechanical components and parts, using hand tools, power tools, and soldering or welding equipment.

- Test components and circuits of faulty equipment in order to locate defects, using oscilloscopes, signal generators, ammeters, voltmeters, or special diagnostic software programs.
- Test new systems in order to ensure that they are in working order.
- Train new repairers.
- Travel to customers' stores or offices to service machines, or to provide emergency repair service.
- Update existing equipment, performing tasks such as installing updated circuit boards or additional memory.

Detailed Tasks

Detailed Work Activities:

- analyze operation of malfunctioning electrical or electronic equipment
- apply cleaning solvents
- calibrate business, vending, or related equipment
- calibrate or adjust electronic equipment or instruments to specification
- clean equipment or machinery
- communicate technical information
- conduct computer diagnostics to determine nature of problems
- conduct performance testing
- conduct sequential tests to locate electronic malfunction
- confer with management or users
- configure computers in industrial or manufacturing setting
- distinguish colors
- fabricate, assemble, or disassemble manufactured products by hand
- install electronic equipment, components, or systems
- install hardware, software, or peripheral equipment
- install office, vending or related equipment
- install/connect electrical equipment to power circuit
- instruct customers in product installation, use, or repair
- lubricate machinery, equipment, or parts
- maintain duplicating equipment
- maintain equipment service records
- maintain or repair computers or related equipment
- maintain records, reports, or files
- modify electrical or electronic equipment or products

- Network management software

- Network shutdown software

- Simple network management protocol SNMP software

- SolarWinds software

Analytical or scientific software

- Root cause analysis software

Authentication server software

- Password management software

Backup or archival software

- Backup and archival software

- Symantec Ghost Solution Suite

- System and data disaster recovery software

- VERITAS Backup Exec

Compiler and decompiler software

- Command interpreters

Computer based training software

- Computer based training software

Configuration management software

- Application management software

- Automated installation software

- Configuration management software

- Microsoft Windows Sysprep

- Patch and update management software

- Systems and applications migration software

Data base management system software

- Oracle software

Data base reporting software

- ReCrystallize Crystal Reports

Data base user interface and query software

- Structured query language SQL

Desktop communications software

- Secure shell SSH software

Development environment software

- C

Enterprise application integration software

- Enterprise application integration EAI software

- obtain information from clients, customers, or patients
- perform safety inspections in industrial, manufacturing or repair setting
- read blueprints
- read schematics
- read technical drawings
- read work order, instructions, formulas, or processing charts
- repair electronic components, equipment, or systems
- repair or maintain office, vending, or related equipment
- repair or replace electrical wiring, circuits, fixtures, or equipment
- replace electronic components
- solder electrical or electronic connections or components
- test electrical/electronic wiring, equipment, systems or fixtures
- test electronic or electrical circuit connections
- test mechanical products or equipment
- understand computer equipment operating manuals
- understand detailed electronic design specifications
- understand service or repair manuals
- understand technical information for electronic repair work
- understand technical operating, service or repair manuals
- use computer aided drafting or design software for design, drafting, modeling, or other engineering tasks
- use computers to enter, access or retrieve data
- use electrical or electronic test devices or equipment
- use electronic calibration devices
- use hand or power tools
- use interpersonal communication techniques
- use knowledge of mainframe computers
- use knowledge of metric system
- use oscilloscopes in electronics repair
- use precision tools in electronics repair
- use soldering equipment
- use voltmeter, ammeter, or ohmmeter

Technology - Examples

- Systems integration software

Gateway software

- Microsoft Windows Terminal Services Access Manager

Graphical user interface development software

- Tk software

Helpdesk or call center software

- Help desk software

Internet directory services software

- Active directory software

- Berkeley Internet Domain Name BIND software

- Domain name system DNS software

- Network addressable storage NAS software

Network monitoring software

- Dartware InterMapper

- Ethereal

- IBM Director

- IBM NetView

- Lavalys Everest

- Micromuse NetCool

- Multi-router traffic grapher MRTG software

- Nagios software

- Network and application load and performance testing software

- Network and component performance analysis software

- Network availability monitoring software

- Network modeling, mapping, and analysis software

- Network traffic flow monitoring and analysis software

- Network traffic probe software

- Novell Netware Management Station

- Online traffic calculator software

- Packet tracing software

- Quest BigBrother

- Quest Foglight

- Remote monitoring software

- Sun Microsystems NetManage

- Tcpdump software

- Veritas NerveCenter

- ZABBIX software

Network operating system enhancement software

- Management information base MIB software

- Network, server and operating system optimization software

- Operating system process control software

Network security and virtual private network VPN equipment software

- Firewall software

Network security or virtual private network VPN management software

- Citrix MetaFrame

- Intrusion prevention system IPS software

- Network and system vulnerability assessment software

- Network intrusion detection software

- OpenService Open NerveCenter

- Security incident handling software

- Virtual local area network management software

Object or component oriented development software

- Practical extraction and reporting language Perl

- Python

Operating system software

- Kornshell

- Shell script

Optical network management software

- Optical network management software

Pattern design software

- Diagramming software

Platform interconnectivity software

- Virtual network computing VNC software

Program testing software

- Computer system diagnostics software

- Mercury Interactive LoadRunner

Requirements analysis and system architecture software

- Requirements management software

Storage networking software

- Storage area network SAN software

Transaction security and virus protection software

- Encryption software

- Honeypot

- Packet filter software

- Ping software

- Root kit detection software

Tools - Examples

- Cable verifiers

- Computer tool kits

- Desktop computers

- Redundant array of independent disks RAID systems

- Optical spectrum analyzers

- Mainframe computers

- Asynchronous transfer mode ATM analyzers

- Network switches

- Notebook computers

- Power meters

- Protocol analyzers

- Punchdown tools

- Optical time domain reflectometers

- Screwdrivers

- Load balancers

- Tape libraries

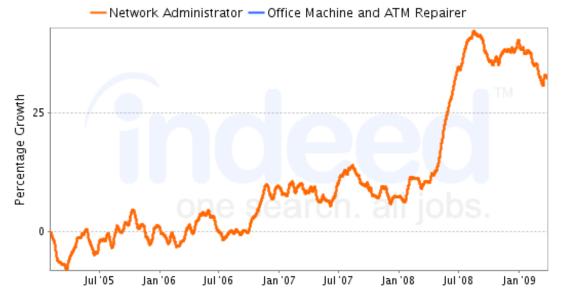- Wire crimpers

Labor Market Comparison

Description	Network and Computer Systems Administrators	Computer, Automated Teller, and Office Machine Repairers	Difference
Median Wage	$ 57,690	$ 32,000	$(25,690)
10th Percentile Wage	$ 40,040	$ 21,440	$(18,600)
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	$ 68,360	$ 38,670	$(29,690)
90th Percentile Wage	$ 78,720	$ 47,530	$(31,190)
Mean Wage	$ 58,030	$ 33,520	$(24,510)
Total Employment - 2007	1,070	640	-430
Employment Base - 2006	1,077	777	-300
Projected Employment - 2016	1,267	803	-464
Projected Job Growth - 2006-2016	17.6 %	3.4 %	-14.3 %
Projected Annual Openings - 2006-2016	44	12	-32

National Job Posting Trends

Trend for Network and Computer Systems Administrators	Trend for Computer, Automated Teller, and Office Machine Repairers

Job Trends from Indeed.com
— Network Administrator — Office Machine and ATM Repairer

Data from

Recommended Programs

Building/Property Main. and Manager

Building/Property Maintenance and Management. A program that prepares individuals to apply technical knowledge and skills to keep a building functioning, and to service a variety of structures including commercial and industrial buildings and mobile homes. Includes instruction in the basic maintenance and repair skills required to service building systems, such as air conditioning, heating, plumbing, electrical, major appliances, and other mechanical systems.

No schools available for the program

Business Machine Repairer

Business Machine Repair. A program that prepares individuals to apply technical knowledge and skills to maintain and repair a variety of office machines, such as typewriters, word processing and dictation machines, calculators, data processing equipment, duplicating machines, and mailing machines. Includes instruction in diagnostic techniques, the use of testing equipment, and the principles of mechanics, electricity, and electronics as they relate to the repair of business machines.

No schools available for the program

Computer Installer and Repairer

Computer Installation and Repair Technology/Technician. A program that prepares individuals to apply technical knowledge and skills to assemble, install, operate, maintain, and repair computers and related instruments. Includes instruction in power supplies, number systems, memory structure, buffers and registers, microprocessor design, peripheral equipment, programming, and networking.

Institution	Address	City	URL
Central Maine Community College	1250 Turner St	Auburn	www.cmcc.edu
Eastern Maine Community College	354 Hogan Rd	Bangor	www.emcc.edu
Wasington County Community College	One College Drive	Calais	www.wccc.me.edu
Wasington County Community College	One College Drive	Calais	www.wccc.me.edu
Northern Maine Community College	33 Edgemont Dr	Presque Isle	www.nmcc.edu
Northern Maine Community College	33 Edgemont Dr	Presque Isle	www.nmcc.edu
Northern Maine Community College	33 Edgemont Dr	Presque Isle	www.nmcc.edu

Maine Statewide Promotion Opportunities for Network and Computer Systems Administrators

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings
15-1071.00	Network and Computer Systems Administrators	100	4	1,070	$57,690.00	$0.00	18%	44
15-1051.00	Computer Systems Analysts	93	4	1,650	$69,340.00	$11,650.00	20%	78
15-1081.00	Network Systems and Data Communications Analysts	91	3	610	$59,790.00	$2,100.00	47%	54
15-1021.00	Computer Programmers	89	4	720	$58,240.00	$550.00	-12%	16

15-1061.00	Database Administrators	89	4	300	$60,260.00	$2,570.00	20%	11
15-1032.00	Computer Software Engineers, Systems Software	86	4	290	$73,410.00	$15,720.00	11%	8
15-1031.00	Computer Software Engineers, Applications	84	4	1,060	$63,750.00	$6,060.00	30%	47
15-1071.01	Computer Security Specialists	83	4	1,070	$57,690.00	$0.00	18%	44
17-2072.00	Electronics Engineers, Except Computer	82	4	210	$76,420.00	$18,730.00	-26%	4
17-2071.00	Electrical Engineers	80	4	260	$73,050.00	$15,360.00	-10%	6
11-3021.00	Computer and Information Systems Managers	79	5	870	$83,130.00	$25,440.00	8%	21
27-1011.00	Art Directors	78	4	90	$66,570.00	$8,880.00	10%	7
17-2031.00	Biomedical Engineers	78	4	20	$86,560.00	$28,870.00	-10%	1
13-1081.00	Logisticians	77	4	190	$59,120.00	$1,430.00	4%	4
17-2112.00	Industrial Engineers	77	4	580	$68,350.00	$10,660.00	11%	22

Top Industries for Computer, Automated Teller, and Office Machine Repairers

Industry	NAICS	% in Industry	Employment	Projected Employment	% Change
Professional and commercial equipment and supplies merchant wholesalers	423400	27.69%	48,444	54,979	13.49%
Self-employed workers, primary job	000601	14.35%	25,109	26,044	3.72%
Electronics and appliance stores	443100	11.50%	20,129	15,944	-20.79%
Electronic and precision equipment repair and maintenance	811200	10.73%	18,782	16,620	-11.51%
Office supplies, stationery, and gift stores	453200	6.31%	11,046	8,872	-19.68%
Self-employed workers, secondary job	000602	5.39%	9,431	9,140	-3.08%
Computer systems design and related services	541500	4.82%	8,433	11,085	31.45%
Wholesale electronic markets and agents and brokers	425100	2.12%	3,701	4,089	10.48%
Employment services	561300	1.55%	2,711	3,341	23.22%
Elementary and secondary schools, public and private	611100	1.09%	1,900	1,949	2.60%
Data processing, hosting, and related services	518200	0.89%	1,559	2,053	31.62%

Computer and peripheral equipment manufacturing	334100	0.83%	1,450	924	-36.27%
Management of companies and enterprises	551100	0.74%	1,292	1,450	12.24%
Management, scientific, and technical consulting services	541600	0.65%	1,141	1,983	73.81%
Colleges, universities, and professional schools, public and private	611300	0.61%	1,066	1,161	8.92%

Top Industries for Network and Computer Systems Administrators

Industry	NAICS	% in Industry	Employment	Projected Employment	% Change
Computer systems design and related services	541500	14.73%	45,535	67,628	48.52%
Management of companies and enterprises	551100	6.04%	18,676	23,682	26.81%
Colleges, universities, and professional schools, public and private	611300	4.65%	14,385	17,702	23.06%
Elementary and secondary schools, public and private	611100	3.97%	12,261	14,213	15.92%
Local government, excluding education and hospitals	939300	3.28%	10,144	12,535	23.57%
Wired telecommunications carriers	517100	3.15%	9,751	8,420	-13.64%
Depository credit intermediation	522100	2.72%	8,418	9,441	12.15%
Data processing, hosting, and related services	518200	2.61%	8,062	11,988	48.71%
Federal government, excluding postal service	919999	2.59%	8,022	8,342	3.99%
Management, scientific, and technical consulting services	541600	2.45%	7,589	14,903	96.38%
General medical and surgical hospitals, public and private	622100	1.96%	6,065	7,386	21.78%
Professional and commercial equipment and supplies merchant wholesalers	423400	1.86%	5,749	7,372	28.23%
State government, excluding education and hospitals	929200	1.78%	5,499	5,936	7.94%
Internet service providers and Web search portals	518100	1.66%	5,146	4,013	-22.02%
Software publishers	511200	1.63%	5,030	7,125	41.63%